

Map Projections

Purpose

Students will use different map projections and compare the way they represent the Eastern Hemisphere.

Materials

For the teacher: globe, transparencies of several different map projections of the Eastern Hemisphere (e.g., Robinson, Galla-Peters, Mercator, etc.), overhead projector

For the students: blank white paper, pencil

For each group of students: globe

Activity

A. Pre-Activity Preparation

Locate several different map projections of the world (or Eastern Hemisphere), and make transparencies of them. Helpful information about different map projections can be found at the U.S. Geological Survey Web site: mac.usgs.gov/mac/isb/pubs/MapProjections/projections.html.

B. Pre-Activity Discussion

1. Show students a globe and remind them that a globe is the only way to proportionally represent Earth properly.
2. Tell students that it is difficult to carry around a globe, so maps are used more frequently.
3. Explain that maps are very helpful representations of Earth, but they are not perfect. Ask: "Why can't a flat map be a perfect representation of Earth?"
4. Explain that when a spherical object is made flat, there are often distortions in distance, direction, shape, or area. Encourage students to imagine taking a whole rind from a grapefruit or orange, trying to lay it flat, and the resulting distortions.
5. Tell students that maps of Earth inevitably distort the size of continents, making it difficult to judge the actual size of land masses.

C. Visual Discrepancies

1. Tell students that there are several map projections that are used to represent Earth, and each projection has certain advantages and disadvantages.
2. Tell students that they will be comparing several maps in terms

Technology Literacy Standards

	I	II	III	IV	V	VI	VII
1	X	X					X
2		X					
3			X				
4		X					
5							
6		X					
7							
8							
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12							
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X = This Technology Literacy Standard is addressed in this lesson.






= This Technology Literacy Standard is not addressed in this lesson.

- of how they portray the Eastern Hemisphere.
3. Display the different map projection transparencies for students.
 4. Ask students the following questions as they study the projections and discuss their responses:
 - How does the *[insert name of projection]* portray the Eastern Hemisphere?
 - Which of these projections looks the most “normal” to you?
 - Why do you think *[insert name of projection]* seems more familiar?
 - How does the *[insert name of projection]* compare to the globe?
 - Which projection seems to be the most proportionally accurate?
 5. Divide students into small groups so that students can share globes and explain that each student will be drawing a world map individually.
 6. Give each group a globe to use as a model.
 7. Explain that the students should make their best attempt to make their maps proportionally accurate.
 8. Have students show their finished maps to the class.
 9. Have students determine which projection each map resembles.
 10. Discuss as a class the difficulties students encountered in trying to draw an accurate map.

Questions for Review

Basic Concepts and Processes

During the discussion of students’ maps, ask questions such as:

-  According to your map, are Europe and Africa similar in size?
-  Why do you think your map is proportioned the way it is?
-  Why do the different projections vary?
-  What kind of cultural issues could help shape a map?
-  What is the benefit of using a globe rather than a flat map?